Medicine Bow Landscape Vegetation Analysis (LaVA) Project
Heritage Resource Specialist Report
Medicine Bow - Routt National Forests and Thunder Basin National Grassland
Laramie, Wyoming

Prepared by:

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NOTE: Modified 7/17/2020 based on June 10, 2020 Cumulative Effects Objection Instructions and by including current alternative descriptions. New verbiage is *underlined and italicized.* See pp. 13 and 15.

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EDITS BASED ON JUNE 10, 2020 REVIEWING OFFICER OBJECTION INSTRUCTIONS

Based on the instructions received from the Reviewing Officer, edits were made on the following pages: 2, 4-7, 7-8, 13, 15. Report edits made after June 10th are indicated as follows: strikethrough for deletions and underlined italics for additions. (e.g. ~~deletions~~, *additions*)

INTRODUCTION

The purpose of this heritage resource specialists report is to analyze and determine the likely effects of the alternatives on historic properties, commonly referred to as significant cultural resources.

Section 106 of the National Historic Preservation Act of 1966 (NHPA), as amended, requires Federal agencies to determine if federally funded, permitted, or licensed activities would adversely affect significant historic properties (36 CFR 800). Cultural resources are considered historic properties if they are eligible for the National Register of Historic Places (NRHP). Determination of the eligibility of cultural resources, and the potential effects that undertakings may have on historic properties are conducted in consultation with the State Historic Preservation Office (SHPO), relevant Indian Tribes, and local governments.

According to the 2004 revised regulations [36 CFR 800.4(d)(1)] for the National Historic Preservation Act (16 U.S.C. 470f), sites considered not eligible for the NRHP may be directly affected once adequately recorded and evaluated, and concurrence is received from the State Historic Preservation Office regarding eligibility.

One of the goals of Forest Service's Heritage Resource Program is to manage cultural resources by locating them through survey, determining their significance, and protecting them in situ or, if impacts are unavoidable, to mitigate adverse effects to the resources. The State Historic Preservation Office (SHPO) reviews inventory strategies, significance, project design criteria, and mitigation measures. Through this review they provide comments regarding the adequacy of the inventory and the potential effects to cultural resources. In Wyoming, the process of consultation with SHPO takes place prior to project implementation as outlined in Stipulation IV(G)(4) of the *2008 Programmatic Agreement Among the USDA Forest Service Wyoming Forests, Wyoming State Historic Preservation Office and the Advisory Council on Historic Preservation (as amended)* (2008 WYPA), but may occur after the NEPA decision as per Appendix F, section II(B) of the 2008 WYPA.

DESCRIPTION OF THE PROPOSAL

For a detailed description of the proposed action and each of the alternatives please see the Medicine Bow Landscape Vegetation Analysis Project Issues and Alternatives Memo dated March 9, 2018, the Revised Issues and Alternatives Memo dated March 28, 2018, and the Draft Environmental Impact Statement, July 2018.

PROJECT AREA

~~The project area encompasses approximately 615,230 acres of National Forest System (NFS) lands and 150,000 – 350,000 vegetation treatment acres located in Albany and Carbon counties in South Central Wyoming~~ *The project area encompasses approximately 850,000 acres of National Forest System (NFS) lands, roughly 613,000 treatment opportunity area acres, and up to 360,000 vegetation treatment acres located in Albany and Carbon counties in South Central Wyoming* (Figure 6). Proposed activities would occur on NFS lands managed by the Medicine Bow National Forest, Laramie and Brush Creek/Hayden Ranger Districts, within the areas designated by the Secretary of Agriculture under the amended Healthy Forests Restoration Act. For purposes of analyzing the Proposed Action, the project area is divided into 14 Accounting Units which are discussed in more detail in Chapter 2 (see Figure 1).

FOREST PLAN

Medicine Bow National Forest management direction is provided by the 2003 LRMP (forest plan). Development of forest plans is required by the rules implementing the Forest and Rangeland Renewable Resources Act of 1974 as amended by the National Forest Management Act of 1976. Forest Plans set forth goals and objectives of management actions and further direct these actions through standards and guidelines. The LAVA project analysis tiers to the 2003 Revised LRMP FEIS (USFS 2003). Chapter 2 of the 2003 LRMP assigns a management emphasis to each management area within the Medicine Bow National Forest. Land management practices that are appropriate in one management area (MA) may be constrained in another. The LAVA project area includes all or parts of 22 MAs (Figure 1).

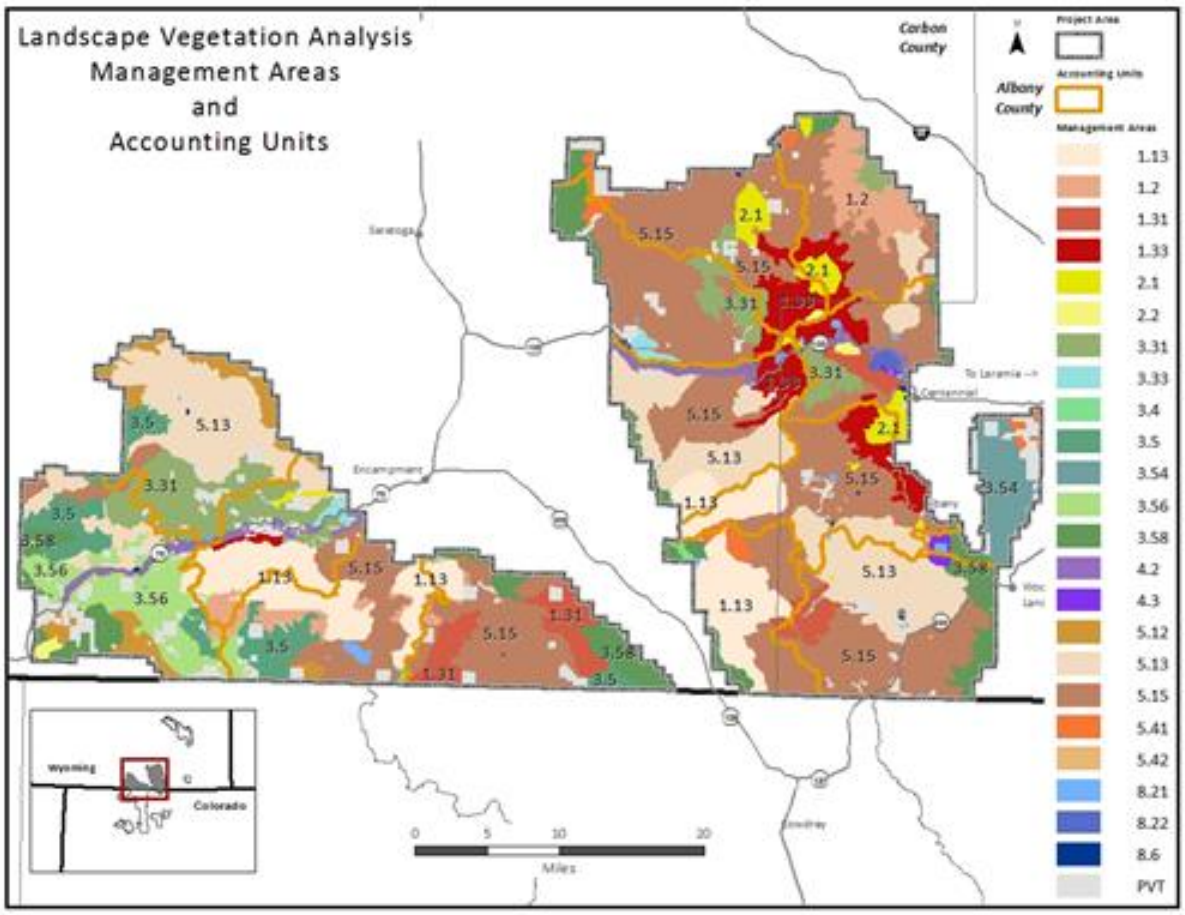

Figure 1. Management Areas within the LaVA Project Area

PURPOSE OF AND NEED FOR ACTION

The purpose of the LAVA Project is to respond to changed forest vegetation conditions presented by the mountain beetle epidemic experienced on the Medicine Bow National Forest. The need for the project is defined by existing and desired vegetation conditions and the threats to forest values they pose. The approach is to actively manage forest vegetation using tree cutting, prescribed burning, or hand treatments, consistent with the goals outlined in the Governor's Task Force on Forests (Final Report, 2015), Western Bark Beetle Strategy (July 2011), Wyoming Statewide Forest Resource Strategy (2010), the Healthy Forests Restoration Act and Farm Bill Amendment (2003 and 2014), and Medicine Bow Forest Plan (2003). Goals include promoting recovery from the insect infestations, improving the resiliency of green stands to future disturbances, helping protect forested areas on adjacent private and state land, and providing for human safety. General goals will be adapted during implementation to fit conditions at the local project scale where treatments are needed based on Forest Plan direction, foreseeable conditions, and local environmental, social and economic concerns.

The discussion in Chapter 1 of the LaVA EIS identified gaps between the existing and desired condition of the Forest within the LAVA project area as follows:

- The MPB epidemic has moved lodgepole pine stands to an existing condition of lodgepole pine structural stages being well below the 5th decade desired conditions provided in Forest Plan direction. Given the widespread lodgepole mortality, there is a need to accelerate regeneration through vegetation treatments to reach desired conditions and diversity of cover types in order

to reach management area prescriptions, standards, and guidelines. This diversity would provide resilience to future insect and disease epidemics.

- The existing condition of lodgepole pine mortality has moved the Forest away from the desired conditions provided for maintaining a suitable timber base. Within the suitable timber base, there is a need to continue to provide treatments which support the future regeneration of lodgepole pine in order to meet management area prescriptions, standards, and guidelines which require the provision of forest products.
- The existing condition of overhead hazard trees, caused by the MPB epidemic, does not conform to the desired condition of providing for public and employee safety and risk of wildfire in WUI areas.
- The MPB epidemic has created an existing condition of heavy fuels in lodgepole pine stands which does not conform to the desired conditions of providing for the protection of communities, infrastructure, and municipal watersheds from wildfires.
- The heavy mortality in mature lodgepole pine is moving the existing condition away from the desired condition of providing biodiversity on the Forest including the reduction of suitable habitat for Canada lynx. Given this reduction, there is a need to accelerate habitat recovery.

ALTERNATIVES TO BE ANALYZED IN DETAIL

- Alternative 1 – No Action*, Current Management*
- Modified Proposed Action

ALTERNATIVE 1: NO ACTION – CONTINUE CURRENT MANAGEMENT

~~The National Environmental Policy Act (NEPA) requires the study of the No Action Alternative and directs that this alternative be used as a basis for comparing the effects of the Proposed Action and other alternatives.~~

~~The No Action Alternative assumes that the Modified Proposed Action would not be implemented within the analysis area. This alternative represents no attempt to actively respond to the issues, the purpose and need for action, or concerns identified during public scoping and public engagement sessions for this project. There would be no effort to modify existing conditions, unless authorized by other decisions. Current management plans would guide management of the project area and ongoing management programs would be implemented. These other projects would proceed under separate NEPA analyses or authorities. Other related projects which are currently authorized will be noted in EIS Chapter 1 under "Other Related Efforts."~~

The National Environmental Policy Act directs Federal agencies to study a no-action alternative when undertaking ground-disturbing activities; it also directs that this alternative be used as a baseline for comparing the effects of the proposed action and other action alternatives.

The LaVA Project no-action alternative assumes a continuation of the current level of management activity that has occurred for specific program areas over the last 15 years—the 15-year implementation period of the 2003 Medicine Bow National Forest Land and Resource Management Plan (forest plan). The no-action alternative then projects management actions that could occur in these same program areas over the next 15 years—the implementation period in the LaVA project area, absent the LaVA Project.

Assumptions for the No-Action Alternative (Current Management):

- *The modified proposed action would not be implemented.*
- *Forest management activities, as authorized under prior decisions, would be implemented until completed (see chapter 3, "Summary of Cumulative Effects" section).*

- *Routine management activities would continue at current levels. These activities include, but are not limited to, resource inventories; administration of livestock grazing and special use permits; recreation operations; invasive species and noxious weed treatments; monitoring and surveys; facility, road, and trail maintenance; decommissioning of nonsystem, unauthorized travel routes; law enforcement; and hazard tree removal.*
- *Current management programs, such as timber sales, watershed and wildlife habitat restoration, and fuels management would continue at levels similar to those that have occurred since the forest plan was approved in 2003. Temporary road construction would continue at levels similar to those that occurred between 2013 and 2018. Each of these program areas are described briefly below and management estimates are provided in Table 1.*

Vegetation Management: *Vegetation management includes timber harvest, precommercial thinning, and weed and release treatments. We expect timber harvest activities to match their 15-year average of 1,352 acres per year, ranging from 101 to 1,895 acres per year. Similarly, we expect precommercial thinning to continue its 15-year average of 512 acres per year, ranging from 73 to 749 acres per year. Weed and release activities would continue their 15-year average of 62 acres per year, ranging from 0 to 464 acres per year.*

Fuels Management:

[1] *Fuels management, including prescribed fire and fuel treatments, would likely continue at levels similar to those that have occurred over the past 15 years. We expect annual application of prescribed fire to match its 15-year average of 1,000 acres per year, ranging from a minimum of 1 acre to a maximum of 2,000 acres per treatment area. We also expect mechanical fuels treatments would match their 15-year average of 2,017 acres per year, ranging from a minimum of 16 acres to a maximum of 4,812 acres per year. These acreages, as well as some under vegetation management, include work accomplished in wildland-urban interface areas.*

Watershed and Wildlife Habitat Restoration: *Watershed, mechanical, and prescribed fire wildlife habitat restoration activities in the LaVA project area would likely continue at levels similar to those that have occurred over the past 15 years. We expect annual wildlife habitat restoration activities by prescribed fire or mechanical treatment to match their 15-year average of 124 acres per year, ranging from a minimum of 10 to a maximum of 430 acres per year.*

Temporary Road Construction:[2] *Temporary road construction is primarily associated with timber harvest activities and would likely continue at levels similar to those that have occurred over the past 5 years. We expect annual temporary road construction to match its 5-year average of 5 miles per year, ranging from a minimum of 1 mile to a maximum of 8 miles of temporary road construction per year.*

[1]Timber harvest and other activities, such as grazing, tree thinning, fuel chipping, and protection of wildland-urban interface areas, generally contribute to fuels management acreage estimates. These activities have been subtracted from stand-alone fuels reduction activities (for example, mastication) to avoid double-counting and overestimating potential treatment acres under the LaVA no-action alternative.

[2] Timber management between 2003 and 2013 focused primarily on wildland-urban interface protection and roadside clearing of hazard trees which required little to no temporary road construction. Consequently, inclusion of this timeframe in the no-action alternative description would underestimate future temporary road construction projections.

While all of the management activities described above would be analyzed as separate projects under the National Environmental Policy Act, we have included the management projections here to allow for a more robust analysis of the no-action alternative.

Table 1. No-action alternative annual and 15-year projections

Management Action	***Annual Estimates***	***15-year Projections***
Timber harvest (acres)	*1,352*	*20,280*
Precommercial thinning (acres)	*334*	*5,010*
Weed and release (acres)	*62*	*930*
Prescribed fire (acres)	*1,000*	*15,000*
Fuels treatments (acres)	*2,017*	*30,255*
Watershed and wildlife habitat restoration (acres)	*124*	*1,860*
Total acres	*4,889*	*73,335*
Temporary road construction (miles)	*5*	*75*

Natural Disturbances and Stressors: *These factors would continue to affect ecosystem characteristics and interact with other natural and human-caused disturbances under both the no-action alternative and the modified proposed action. Therefore, assumptions surrounding these conditions are documented in chapter 3, "Analysis Assumptions".*

ALTERNATIVE 2 - MODIFIED PROPOSED ACTION

~~The following modifications have been made to the Proposed Action to address concerns raised during the July 2017 scoping effort:~~

- ~~Eliminating the 10 miles of permanent road construction proposed in the July 2017 Scoping Document; and~~
- ~~Developing a new Treatment Opportunity Area (TOA) map to better reflect where temporary road construction is and is not allowed, per Forest Plan direction.~~

~~The Forest Service proposes to conduct vegetation management activities on NFS lands, including inventoried roadless areas, within the Sierra Madre and Snowy Range Mountain Ranges of the MBNF. Vegetation management activities, including prescribed fire, mechanical, and hand treatment methods, could be applied on up to 360,000 acres to make areas more resilient to future disturbance; protect, restore, and enhance forest ecosystem components; supply forest products to local industries; provide for human safety; reduce wildfire risk to communities, infrastructure, and municipal water supplies; and improve, protect, and restore wildlife habitat. Specific treatments would be developed and authorized for implementation over a 10-year period beginning in 2018 and would be completed within approximately 15 years of the project decision. A combination of commercial timber sales, service contracts, stewardship contracts, cooperative authorities, partner capacity, and Forest Service crews would be used to implement the project.~~

~~The Modified Proposed Action is intended to address continually changing forest conditions by incorporating principles of adaptive management. In doing so, this alternative proposes an acreage ceiling of up to 360,000 acres that could be treated within pre-established TOAs (613,000 acres) rather than identifying site-specific treatment units. During project implementation, the Forest Service would cooperate with other agencies, local governments, interested stakeholders, and organizations to identify specific treatment units. Specific objectives of each treatment unit would be determined prior to any ground-disturbing activities using existing vegetation conditions and a series of project-developed field review forms. The sum of all treatments, regardless of roadless status, would not exceed 360,000 acres and would be dependent on such things as staffing, funding, site-specific resource conditions, and project design features.~~

~~Specific activities associated with the Modified Proposed Action include:~~

- ~~Up to 95,000 acres of stand initiating or even-aged treatment methods.~~
- ~~Up to 165,000 acres of uneven-aged or intermediate treatments.~~
- ~~Up to 100,000 acres of other vegetation treatments, including prescribed fire, mastication, and hand thinning.~~
- ~~Constructing not more than 600 miles of temporary road, as necessary, to access treatment areas.~~

The following modifications have been made to the Proposed Action to address concerns raised during the July 2017 scoping effort:

- *Eliminating the 10 miles of permanent road construction proposed in the July 2017 Scoping Document;*
- *1,000 miles of proposed temporary road construction were reduced to 600 miles; and*
- *Developing a new Treatment Opportunity Area (TOA) map to better reflect where temporary road construction is and is not allowed, per Forest Plan direction.*

The Forest Service proposes to conduct vegetation management activities on NFS lands, including inventoried roadless areas, within the Sierra Madre and Snowy Range Mountain Ranges of the MBNF. Vegetation management activities, including prescribed fire, mechanical, and hand treatment methods, could be applied on up to 360,000 acres to make areas more resilient to future disturbance; protect, restore, and enhance forest ecosystem components; supply forest products to local industries; provide for human safety; reduce wildfire risk to communities, infrastructure, and municipal water supplies; and improve, protect, and restore wildlife habitat. Specific treatments would be developed and authorized for implementation over a 10-year period beginning in 2018 and would be completed within approximately 15 years of the project decision. A combination of commercial timber sales, service contracts, stewardship contracts, cooperative authorities, partner capacity, and Forest Service crews would be used to implement the project.

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Specific activities associated with the Modified Proposed Action include:

- *Up to 95,000 acres of stand initiating or even-aged treatment methods.*
- *Up to 165,000 acres of uneven-aged or intermediate treatments.*
- *Up to 100,000 acres of other vegetation treatments, including prescribed fire, mastication, and hand thinning.*
- *Constructing not more than 600 miles of temporary road, as necessary, to access treatment areas. A cap of 75 miles of temporary roads being open at one time was included to be responsive to concerns related to too many miles being open at any given time.*

Adaptive Management Treatment Options

A variety of management options including, but not limited to, clearcutting/coppice; group and individual tree selection; salvage; mastication; sanitation; thinning; and prescribed fire would be used to achieve resource objectives identified for individual treatments.

Inventoried Roadless Area

Roughly 125,200 acres of Inventoried Roadless Areas have been identified as potential TOAs. No temporary road construction would occur in IRAs.

Road/Access Information

The Modified Proposed Action includes constructing no more than 600 miles of temporary road, as necessary, to access treatment areas. Temporary roads would be for administrative use only (i.e., they would be managed as closed to the public) and would be reclaimed within 3 years of project completion to preclude future motorized use and to restore ecological function in the affected area. Methods for reclaiming temporary roads may include, but are not limited to, re-contouring the road, ripping/scarifying the roadbed, removing culverts, installing drainage features, creating physical barriers to preclude motorized travel, scattering wood/rock debris onto the road, applying seed and mulch to the area, and posting signs.

The alternative also includes utilizing and/or reconstructing existing open and closed NFS roads to access treatment units. Reconstruction may include road blading, culvert installation or replacement, and gravelling. Closed NFS roads would be for administrative access only and would be returned to a closed status with the method of closure being determined at implementation.

Other Activities

Other activities associated with the Modified Proposed Action include, but are not limited to slash treatments (e.g., pile burning, chipping), regeneration surveys, noxious weed control, native grass/forb seeding, and road maintenance associated with implementing vegetation treatments.

Forest Plan Compliance

Cultural Resources have protections in the 2003 Medicine Bow National Forest Revised Land and Resource Management Plan (USFS 2003) standard and guidelines (Table 2). These standards assure that any known or newly discovered significant cultural resources will be protected from direct impacts if protection is unavoidable, mitigation measures are taken.

Table 2. Standards and Guidelines from the Medicine Bow National Forest Land and Resource Management Plan

Social	
Standard #1	Conduct all land management activities to comply with all applicable federal, state, and local regulations including: a. The National Historic Preservation Act. b. Native American Graves Protection and Repatriation Act. c. American Indian Religious Freedom Act
Guideline #4	Protect significant resources from damage by activities or vandalism through project design, specified protection measures, monitoring, and coordination.

Project Design Features

Project Design Features (PDFs) have been developed for the LaVA Project to reduce or prevent potential undesirable effects resulting from management activities and to ensure consistent analysis of project effects, respectively. The Design Features relevant to the protection of cultural resources are given in Table 3.

Table 3. Heritage Resources Design Features in LaVA MFEIS relevant to cultural resources

Design Feature	Objective: Protect cultural and sacred sites that need protection; Fulfill National Historic Preservation Act requirements; and avoid, minimize, or mitigate unexpected adverse impacts to heritage resources.
1	National Historic Preservation Act (NHPA) compliance will be completed for each treatment area prior to treatment implementation. This may include literature reviews, field surveys (if deemed necessary by the Heritage specialist) and completion of SHPO and tribal consultation. Surveys, reporting, and consultation may be conducted in accordance with a Programmatic Agreement. SHPO and tribal consultation may result in additional cultural resource avoidance or protection measures.
2	In the event that cultural materials or human remains are discovered, all activities in the immediate area will stop, the area secured and the Forest Archaeologist and District Ranger will be notified immediately. Work will not resume in that area until the Forest Archaeologist has evaluated the material and has notified the District Ranger that the applicable requirements of 36 CFR 800, 43 CFR 10.4 and NAGPRA have been completed.
3	Site-specific implementation measures to protect or enhance heritage resources will be determined at the time of project implementation.

AFFECTED ENVIRONMENT

The analysis area for the Medicine Bow Landscape Vegetation Analysis Environmental Impact Statement (LaVA EIS) includes all Forest System Lands on the Snowy Range and Sierra Madre, two peninsula ranges of the Southern Rockies in southeastern Wyoming continuous with the forests of the Medicine Bow Mountains and Parks Range in Colorado, respectively. This report is concerned with describing the current status of heritage resources, a non-renewable resource, across these two Forest Service units.

Cultural resources on the Medicine Bow National Forest represent a diversity of cultures and their uses of landscapes and represent at least 12,000 years of human history. Known prehistoric sites include hunting camps, settlements, trails, resource gathering areas, to name just a few. Historic period sites such as emigrant trails, homesteads, and railroad grades illustrate the westward movement; and conflicts between settlers and the Indians have left evidence in the form of battlegrounds and forts. Mining-related properties such as shaft houses, ghost towns, and patterned tailings tell the story of boom and bust mining towns, and the search for gold and other sought after minerals. Lodges, summer homes, and campgrounds document the evolution of the outdoor recreation movements of the late 19th and early 20th centuries. Depression-era structures built by the Civilian Conservation Corps, early FS guard stations, and lookout towers illustrate the Federal land management era of the past century.

Prehistoric cultural resources tend to represent cultural and environmental interactions over time and closely reflect responses, in terms of location and site type, to changing environmental and climatic conditions. The natural forest conditions that are currently identified as undisturbed (usually found in the more remote portions of the national forests) are actually the result of the influence of past customs and practices of the previous populations of Native Americans. Historic cultural resources tend to represent cultural and economic needs, facilitated by technology and its advances, to dominate rather than to interface with the environment (Reed 2011).

Sacred sites, as defined in EO13007, may encompass areas of historic and prehistoric cultural resources. However, sacred sites need not be traditional, or historic – sacred sites may be identified by tribal representatives because the sites are significant in religious observances regardless of age or any empirical evidence of religious activity. When sacred sites are not coincident with historic or prehistoric cultural resources, the sites may be associated with distinctive topographic or geologic features.

As our society grows more urban and complex, people long for unique and authentic opportunities to experience the natural and cultural heritage of special places. Thus, cultural resources on public lands enrich people's experiences by creating opportunities to discover their unique past. People are fascinated with the past, whether it is their own family history, the history of their town or regional past, or the lifeways of ancient peoples. There is a mystery and nostalgia associated with the past that captivates the imagination as well as the intellect--the desire to understand how we arrived at where we are today. Because of the intrigue of archaeology and the past, heritage has a ready and willing public constituency. Cultural resources enhance local communities and build bridges of understanding between the forest and its neighbors.

DIRECT AND INDIRECT EFFECTS

A comprehensive array of laws, executive orders, federal regulations, as well as agency specific policy and direction provide the basis for the protection of cultural resources.

Management activities may directly affect cultural resources. Cultural resources may also be indirectly or cumulatively affected. Activities that may affect cultural resources are subject to the regulations outlined in Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended, and as promulgated by 36 CFR 800.

Sacred sites, as defined by EO13007, may be similarly affected in that the tangible, salient features of a sacred site may be directly, indirectly, or cumulatively affected. However, there is no congressional act or agency regulation to guide the consideration of effects to features of a sacred site.

The following assumptions apply in our assessment of the environmental consequences of this project:

- Cultural resources are managed according to existing laws, regulations and programmatic agreements to protect these resources
- Public interest and support for cultural resource management will increase, including that of American Indian tribes, groups and individuals.

Unlike most other resource values, cultural resources are, by their very nature, non-renewable resources. Impacts to cultural resources are usually permanent – though some features may be rehabilitated, repaired, or restored. Effects on some cultural resources, such as ~~the~~ upgrading the roof in an historical building with non-compatible materials (wooden shakes to asphalt shingles), can be reversed; however, until that happens, the effect is ongoing and potentially adverse. Overall, such effects usually result in compromising the integrity of the resource and may affect its eligibility for inclusion in the National Register of Historic Places.

When the integrity of a sacred site is compromised by ground disturbing activities, or by the introduction of any visual or auditory elements that may jeopardize the use of the site for ceremonial purposes, then that loss of integrity should be considered an adverse effect. The potential for such effects to be reversed or mitigated is a subject for discussion with the practitioners who hold the site to be sacred. There is no standard for the resolution of adverse effects to sacred sites.

As a rule, any activity that causes ground disturbance (disturbance to the soil matrix that contains the cultural resource) has the potential to adversely affect cultural resources, both directly and indirectly. Ground disturbance may cause changes to the physical attributes of the resource that, in turn, compromise the integrity of the cultural resource and its context. Its context (the spatial relationship between the various artifacts, features and components of the cultural resource), is what is scientifically studied and interpreted and is the basis for the site significance determination. This effect is irreparable and considered adverse. Even a scientific archaeological excavation has an adverse effect because it is destroying the integrity and context of the cultural resource by removing its artifacts, features and components.

Direct effects that can damage cultural resources or their setting can result both from natural events or processes and human activities. Indirect effects can result from changed visitor use patterns and improved access that brings more visitors, resulting in the deterioration or loss of the site. There is also the potential for previously unknown cultural resource sites to be discovered through exposure and/or damaged by land use activities that involve surface disturbance. Effects from project-specific activities are easier to identify and manage for through appropriate mitigation measures. Non-project-specific activities (such as unauthorized off-road vehicle use or wildfires) have the greatest potential to adversely affect cultural resources, as these activities do not lend themselves to identification, anticipation or mitigation.

Table 4. Cultural Resource Site Information by Accounting Unit

Site Type	JS	SB	BP	GH	BB	RM	BK	CB	NC	WF	FD	PP	FW	OS
Unknown	69	55	16	34	49	9	5	22	10	31	26	2	29	4
Prehistoric	45	23	5	7	72	2	6	15	0	6	20	23	24	8
Historic	133	130	94	105	154	69	50	89	130	198	241	40	175	11
Multicomponent	18	7	0	2	11	5	0	2	1	2	4	3	9	1

Table 5. National Register of Historic Places Eligibility

Site Type	JS	SB	BP	GH	BB	RM	BK	CB	NC	WF	FD	PP	FW	OS
Eligible	54	48	32	68	62	22	15	29	50	68	105	13	38	4
Not Eligible	131	106	60	44	160	42	27	68	46	131	127	52	133	7
Listed	3	1	0	0	0	0	0	2	3	1	1	0	1	0
Unevaluated	69	60	22	36	64	17	14	29	42	42	59	3	65	13

Accounting Units: JS = Jack Savery, SB = Sandy Battle, BP = Battle Pass, GH = Green Hog, BB = Big Blackhall, RM = Rock Morgan, BK = Bow Kettle, CB = Cedar Brush, NC = North Corner, WF = West French, FD = French Douglas, PP = Pelton Platte, FW = Fox Wood, OS = Owen Sheep

Eligible = eligible for listing to the National Register of Historic Places; **Not Eligible** = Not Eligible for listing to the National Register of Historic Places; **Listed** = Listed on the National Register of Historic Places; **Unevaluated =** unevaluated for listing to the National Register of Historic Places

EFFECTS ANALYSIS HERITAGE RESOURCES

ALTERNATIVE 1: NO ACTION

Direct Effects

The No Action Alternative represents existing conditions in the LaVA analysis area, including the condition of the forest ecosystem, the current road system and the ongoing disturbance in the area. The mountain pine beetle (MPB) epidemic has killed off large portions of the lodgepole pines across the National Forest. Tree mortality is extremely variable and can be <20% to >80% of the total stand. This large-scale die-off has created conditions where the dead and dying trees are falling in unprecedented number on the forest floor. This has, and will continue to, resulted in direct impacts to the surface features of cultural sites. For example, dead and dying trees falling and impacting standing historic structures and accumulating on the surface of sites resulting in the heavy fuel loading which, when exposed to wildfire can alter the condition of stone tools, organic materials and historic artifacts. Left untreated these impacts will continue, and likely increase in the amount of impacts to significant cultural resources. Direct effects would also include rendering many dating methods inaccurate, visual alteration of sites and the physical destruction of materials. In addition, rain and snow after a fire can cause severe erosion on heritage properties.

Cumulative Effects

The loss of archaeological resources has happened in the past and would continue to happen without any protection. *Under the No Action Alternative, fuels loads across the landscape would not be reduced; thus the threat of wildfire would contribute to the long-term deterioration of heritage sites. Additionally, dead trees will continue to fall on heritage sites, damaging some aspects of integrity, as well as adding to the fuel load on the site.*

Under other NEPA decisions (Tables 93-96 of the MFEIS discuss current NEPA decisions in which vegetation treatments are ongoing), effects to cultural sites from current and future vegetation projects have been and would continue to be assessed using the Programmatic Agreement among the USDA Forest Service, Wyoming Forests, the Wyoming State Historic Preservation Officer and the Advisory Council on Historic Preservation. Under this agreement, adverse effects to historic properties must be avoided, but effects that are non-adverse, such as removing dead trees from within a site boundary, are acceptable. Actions under current NEPA decisions can be beneficial to Historic Properties by reducing fuel loads in and around sites, and removing dead trees that threaten the integrity of sites. The cumulative effect is that over time fewer archaeological resources ~~will~~ *would* be available for study and interpretation.

ALTERNATIVE 2: MODIFIED PROPOSED ACTION

This analysis considers potential direct, indirect, adverse and beneficial effects of the modified proposed action on heritage resources.

Direct, Indirect and Adverse Effects

In this alternative there would be a reduction in adverse effects to significant cultural resources due to the requirement of meeting our legal obligations under Section 106 of the National Historic Preservation Act, the 2008 PA and Design Criteria #3 for Heritage Resources. For any of the projects occurring (tree cutting, prescribed burning, fuels treatment, etc.) within the project area the forest would be required to follow the process for determining the need and scope for inventory and identification of cultural resources, consultation with the SHPO and interested Tribes on the sites eligible and the effects of the proposed project on those cultural resources. This process is designed to protect those resources.

There is potential for indirect effects from the projects to significant cultural resources. Indirect effects can result from changed visitor use patterns and improved access that brings more visitors, resulting in the deterioration or loss of the site. These types of activities (such as unauthorized off-road vehicle use or wildfires) have the greatest potential to adversely affect cultural resources, as these activities do not lend themselves to identification, anticipation or mitigation. As such it is difficult to manage such impacts.

Cumulative Effects

As with current vegetation projects (tables 93-96 of the MFEIS discuss current NEPA decisions), effects to cultural sites under the modified proposed action would continue to be assessed using the Programmatic Agreement among the USDA Forest Service, Wyoming Forests, the Wyoming State Historic Preservation Officer and the Advisory Council on Historic Preservation. Under this agreement, adverse effects to historic properties must be avoided, but site-specific treatments are allowed. In this way, the modified proposed action would likely reduce the number of sites lost to fire, increased erosion, and the accumulation of debris on sites and historic structures over time.

Application of the appropriate mitigation measures is not expected to result in adverse effects to significant cultural resources. There are not, therefore, expected to be any cumulative adverse effects to cultural resources associated with implementation of any of the activities proposed in this project.

LITERATURE CITED

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